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EXAMINER	
BELL, MELTIN	

ART UNIT	PAPER NUMBER
2121	10

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/846,891	CHARBONNEAU ET AL.	
	Examiner	Art Unit	
	Meltin Bell	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 August 2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/8-1-01,7/9-18-02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to application **09/846,891** filed **05/01/01.**

Claims 1-19 have been examined.

Information Disclosure Statement

Applicant is respectfully reminded of the ongoing Duty to disclose 37 C.F.R. 1.56 all pertinent information and material pertaining to the patentability of applicant's claimed invention, by submitting in a timely manner PTO-1449, Information Disclosure Statement (IDS) with the filing of applicant's application or thereafter.

The information disclosure statement filed 8/1/01 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because of missing or inaccurate information in the listing:

- The 8/13/99 date of publication for USPN 5,946,666 is incorrect.
- The Collard reference is missing the date of publication.

The specification refers to documents that should be included in an IDS:

- USPN 5,461,699 - page 2, line 1
- Hodrick and Prescott 1980 - page 15, line 35
- All the documents on page 21.

It has been placed in the application file. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Drawings

The United States Patent and Trademark Office of Draftsperson's Patent Drawings Review have reviewed the formal drawings. Reasons for any Draftsperson objections under 37 CFR 1.84 or 1.152 will be indicated on the Form PTO-948, Notice of Draftsperson's Patent Drawing Review, if attached.

The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the drawings.

The drawings are objected to because:

- The writing inside the hashed arrows of Fig. 2 is not readable. The orientation of text in Fig. 2's arrows is also inconsistent.
- Marix should be matrix in Fig. 4, step 150.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

- The use of the trademarks REUTERS™, S&P™, AAII™, VALUELINE™, MATHEMATICA™, MATLAB™, GAUSS™, COMPUSTAT™, INDUSTRY™ and INDUSTRY SURVEY™ have been noted in this application (specification: page 3, line 32; page 6, line 8; page 5, lines 22-25; page 9, line 21; page 13, line 11). They should be capitalized wherever they appear and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.
- "Standard Industry Classification" on page 13, line 2 should be defined or a reference including the definition should be given.
- ", respectively" should follow "100, 200" on page 14, line 13.
- ", respectively" should follow "500, 600" on page 18, line 33.
- "140" should be added after "Matrix" on page 14, line 20.
- "A matrix 410" on page 16, lines 28-30 should be "A Matrix 610" from Fig. 5.
- A 'd' should be appended to "normalize" on page 18, line 4.

- "matrix" should be "vectors" on page 19, line 30.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 10-12, 15 and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by *Eder* U.S. Patent Number 6,393,406 (Issued May 21, 2002, Filed January 6, 1997).

Regarding claim 1:

Eder teaches,

- interpolation means capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Figs. 1, items 500, 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- wherein the valuation information output by the interpolation means is substantially derived by the interpolation means from the fundamental financial data and not substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

Regarding claim 2:

Eder further teaches,

- the interpolation means is a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

Regarding claim 3:

Eder further teaches,

- the valuation information output by the interpolation means comprises information regarding the current value of the company (column 1, lines 39-42, "Income valuations are...of the business"; column 5, Table 2; column 22, lines 19-35, "The flow diagram...a software block 307")

Regarding claim 4:

Eder further teaches,

- the fair valuation information comprises a range of values that represent valuations of the company within a predetermnined confidence level (column 15, lines 49-58, "The valuation of...current system date"; column 24, lines 52-63, "The input vectors...5 shown below")

Regarding claim 5:

Eder further teaches,

- the neural network is trained with test data relating to a preselected group of companies (column 3, lines 61-66, "Market valuations are...a recent transaction")

- wherein, for each company, the test data comprises fundamental financial data and time series data (column 12, lines 15-34, "Advanced financial systems...herein by reference")

- wherein input values to the neural network during training are derived from the fundamental financial data (column 23, lines 57-66, "The software in...in FIG. 10")

- model output values are derived from the time series data (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

Regarding claim 10:

The rejection of claim 5 is incorporated. Therefore, claim 10 is rejected under the same rationale as claim 5.

Regarding claim 11:

Eder further teaches,

- the fundamental financial data comprises accounting information (column 3, lines 43-47, "The dependence on...virtually every company")

Regarding claim 12:

Eder further teaches,

- the fundamental financial data comprises industry-group-specific information (column 4, lines 1-6, "it would be...in new industries")

Regarding claim 15:

The rejection of claim 1 is incorporated. Therefore, claim 15 is rejected under the same rationale as claim 1.

Regarding claim 17:

Eder teaches,

- a neural network capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 23, lines 57-66, "The software in...in FIG. 10"; column 28, lines 2-15, "After the revenue component...between independent variables")

- wherein the valuation information output by the neural network is substantially derived by the neural network from the fundamental financial data and not substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

Regarding claim 18:

Eder teaches,

- interpolating fundamental financial data for a company (Figs. 1, items 500, 50; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- outputting valuation information for the company (Figs. 1, items 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- wherein the valuation information is substantially derived from the fundamental financial data and not substantially derived from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

Regarding claim 19:

Eder further teaches,

- the step of interpolating is performed by a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

Claim Rejections - 35 USC § 103

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 6-9,13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Eder* U.S. Patent Number 6,393,406 (Issued May 21, 2002, Filed January 6, 1997) in view of *Martin* U.S. Patent Number 6,330,547 (Issued December 11, 2001, Filed June 2, 1999), in view of *Deck et al* "Interactions of Automated Pricing Algorithms: An Experimental Investigation" (October 2000) in view of *Maravall et al* "Time Aggregation and the Hodrick-Prescott Filter" (March 2001) and further in view of *Nunn et al* "Multi-Parameter Local Optimization for the Design of Superior Matched Filter Polyphase Pulse Compression Codes" (May 2000).

Regarding claim 6:

Eder teaches,

- interpolation means capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Figs. 1, items 500, 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- wherein the valuation information output by the interpolation means is substantially derived by the interpolation means from the fundamental financial data and not substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

- the interpolation means is a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

- the neural network is trained with test data relating to a preselected group of companies (column 3, lines 61-66, "Market valuations are...a recent transaction")

- wherein, for each company, the test data comprises fundamental financial data and time series data (column 12, lines 15-34, "Advanced financial systems...herein by reference")

- wherein input values to the neural network during training are derived from the fundamental financial data (column 23, lines 57-66, "The software in...in FIG. 10")

- model output values are derived from the time series data (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

However, *Eder* doesn't explicitly teach filtering the time series data using a smoothing filter while *Deck et al* teaches,

- the model output values are derived by filtering the time series data using a smoothing filter (page 82, footnote 8, sentences 2-4, "The data are...differences of s_t")

Motivation - The portions of the claimed system would have been highly desirable features in this art for

- Minimizing variance (*Deck et al,* page 82, footnote 8, sentence 4, "The Hodrick-Prescott filter...differences of s_t")
- Improving the value of an enterprise (*Eder*, column 5, lines 23-38, "The innovative system...were described previously")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Eder* with *Deck et al* to obtain the invention specified in claim 6, a system for determining a fair valuation of a company. The modification would have been obvious because one of ordinary skill in the art would have been motivated to minimize errors when calculating the value of an enterprise.

Regarding claim 7:

Eder teaches,

- interpolation means capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Figs. 1, items 500, 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- wherein the valuation information output by the interpolation means is substantially derived by the interpolation means from the fundamental financial data and not

substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

- the interpolation means is a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

- the neural network is trained with test data relating to a preselected group of companies (column 3, lines 61-66, "Market valuations are...a recent transaction")

- wherein, for each company, the test data comprises fundamental financial data and time series data (column 12, lines 15-34, "Advanced financial systems...herein by reference")

- wherein input values to the neural network during training are derived from the fundamental financial data (column 23, lines 57-66, "The software in...in FIG. 10")

- model output values are derived from the time series data (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

However, *Eder* doesn't explicitly teach using a Hodrick-Prescott filter while *Deck et al* teaches,

- the model output values are derived by filtering the time series data using a Hodrick-Prescott filter (page 82, footnote 8, sentences 2-4, "The data are...differences of s_t")

Motivation - The portions of the claimed system would have been highly desirable features in this art for

- Minimizing variance (*Deck et al,* page 82, footnote 8, sentence 4, "The Hodrick-Prescott filter...differences of s_t")

- Improving the value of an enterprise (*Eder*, column 5, lines 23-38, "The innovative system...were described previously")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Eder* with *Deck et al* to obtain the invention specified in claim 7, a system for determining a fair valuation of a company. The modification would have been obvious because one of ordinary skill in the art would have been motivated to minimize errors when calculating the value of an enterprise.

Regarding claim 8:

Eder teaches,

- interpolation means capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Figs. 1, items 500, 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- wherein the valuation information output by the interpolation means is substantially derived by the interpolation means from the fundamental financial data and not substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

- the interpolation means is a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

- the neural network is trained with test data relating to a preselected group of companies (column 3, lines 61-66, "Market valuations are...a recent transaction")

- wherein, for each company, the test data comprises fundamental financial data and time series data (column 12, lines 15-34, "Advanced financial systems...herein by reference")

- wherein input values to the neural network during training are derived from the fundamental financial data (column 23, lines 57-66, "The software in...in FIG. 10")

- model output values are derived from the time series data (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

However, *Eder* doesn't explicitly teach using a Hodrick-Prescott filter or its priority weight parameter while *Deck et al* teaches,

- the model output values are derived by filtering the time series data using a Hodrick-Prescott filter (page 82, footnote 8, sentences 2-4, "The data are...differences of s_t")

Maravall et al teaches,

- a priority weight parameter in the Hodrick-Prescott filter has a value between 100,000 and 1,500,000 (page 38, Table 5)

Nunn et al teaches,

- a priority weight parameter in the Hodrick-Prescott filter has a value between 100,000 and 1,500,000 (page 435, Abstract, paragraph 2, sentence 3, "All or any ... predetermined weighting priority")

Motivation - The portions of the claimed system would have been highly desirable features in this art for

- Efficient and convenient comparisons (*Maravall et al,* page 7, last 2 paragraphs, "Figure 1a shows...and analytically convenient")
- Retaining the best qualities (*Nunn et al,* page 435, Abstract, paragraph 2, sentences 1-2, "In this paper...dwell-to-dwell, ECM robustness")
- Minimizing variance (*Deck et al,* page 82, footnote 8, sentence 4, "The Hodrick-Prescott filter...differences of s_t")
- Improving the value of an enterprise (*Eder*, column 5, lines 23-38, "The innovative system...were described previously")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Eder* with *Deck et al*, *Nunn et al* and *Maravall et al* to obtain the invention specified in claim 8, a system for determining a fair valuation of a company. The modification would have been obvious because one of ordinary skill in the art would have been motivated to minimize errors when calculating an enterprise's best value.

Regarding claim 9:

Eder teaches,

- interpolation means capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Figs. 1, items 500, 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- wherein the valuation information output by the interpolation means is substantially derived by the interpolation means from the fundamental financial data and not

substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

- the interpolation means is a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

- the neural network is trained with test data relating to a preselected group of companies (column 3, lines 61-66, "Market valuations are...a recent transaction")

- wherein, for each company, the test data comprises fundamental financial data and time series data (column 12, lines 15-34, "Advanced financial systems...herein by reference")

- wherein input values to the neural network during training are derived from the fundamental financial data (column 23, lines 57-66, "The software in...in FIG. 10")

- model output values are derived from the time series data (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

However, *Eder* doesn't explicitly teach using a Hodrick-Prescott filter or its priority weight parameter while *Deck et al* teaches,

- the model output values are derived by filtering the time series data using a Hodrick-Prescott filter (page 82, footnote 8, sentences 2-4, "The data are...differences of s_t")

Maravall et al teaches,

- a priority weight parameter in the Hodrick-Prescott filter has a value of approximately 900,000 (page 38, Table 5)

Nunn et al teaches,

- a priority weight parameter in the Hodrick-Prescott filter has a value of approximately 900,000 (page 435, Abstract, paragraph 2, sentence 3, "All or any ... predetermined weighting priority")

Motivation - The portions of the claimed system would have been highly desirable features in this art for

- Efficient and convenient comparisons (*Maravall et al,* page 7, last 2 paragraphs, "Figure 1a shows...and analytically convenient")
- Retaining the best qualities (*Nunn et al,* page 435, Abstract, paragraph 2, sentences 1-2, "In this paper...dwell-to-dwell, ECM robustness")
- Minimizing variance (*Deck et al,* page 82, footnote 8, sentence 4, "The Hodrick-Prescott filter...differences of s_t")
- Improving the value of an enterprise (*Eder*, column 5, lines 23-38, "The innovative system...were described previously")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Eder* with *Deck et al*, *Nunn et al* and *Maravall et al* to obtain the invention specified in claim 9, a system for determining a fair valuation of a company. The modification would have been obvious because one of ordinary skill in the art would have been motivated to minimize errors when calculating an enterprise's best value.

Regarding claim 13:

The rejection of claim 6 is incorporated. Claim 13's further limitations are taught in *Eder*:

- cyclic residuals are derived from the filtered time series data and a range of values that represent valuations of the company within a predetermined confidence level are derived from the cyclic residuals (column 15, lines 49-58, "The valuation of...current system date"; column 24, lines 52-63, "The input vectors...5 shown below"; column 34, lines 48-61, "After the calculations...the application database")

Therefore, claim 13 is rejected under the same rationale as claim 6.

Regarding claim 14:

Eder teaches,

- interpolation means capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Figs. 1, items 500, 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)

- wherein the valuation information output by the interpolation means is substantially derived by the interpolation means from the fundamental financial data and not substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")

- the interpolation means is a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

- the neural network is trained with test data relating to a preselected group of companies (column 3, lines 61-66, "Market valuations are...a recent transaction")

- wherein, for each company, the test data comprises fundamental financial data and time series data (column 12, lines 15-34, "Advanced financial systems...herein by reference")

- wherein input values to the neural network during training are derived from the fundamental financial data (column 23, lines 57-66, "The software in...in FIG. 10")

- model output values are derived from the time series data (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

- cyclic residuals are derived from the filtered time series data and a range of values that represent valuations of the company within a predetermined confidence level are derived from the cyclic residuals (column 15, lines 49-58, "The valuation of...current system date"; column 24, lines 52-63, "The input vectors...5 shown below"; column 34, lines 48-61, "After the calculations...the application database")

However, *Eder* doesn't explicitly teach privately held companies while *Martin* teaches,

- the company being valued is privately held (column 12, lines 41-47, "Information may be...public or private")

Motivation - The portions of the claimed system would have been highly desirable features in this art for

- Increasing financial options (*Martin,* column 2, lines 3-8, "in order to...possible to lenders")
- Improving the value of an enterprise (*Eder*, column 5, lines 23-38, "The innovative system...were described previously")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Eder* with *Martin* to obtain the invention specified in claim 16, a system for determining a fair valuation of a company. The modification would have been obvious because one of ordinary skill in the art would have been motivated to offer flexibility when calculating the value of an enterprise.

Regarding claim 16:

Eder teaches,

- interpolation means capable of receiving as input fundamental financial data for a company and outputting valuation information for the company (Figs. 1, items 500, 50, 700, 900; Figs. 3, 5A-B; Fig. 7, steps 414, 415)
- wherein the valuation information output by the interpolation means is substantially derived by the interpolation means from the fundamental financial data and not substantially from time series market valuation data for the company (Abstract, "An automated system...future equity prices")
- the interpolation means is a neural network (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")
- the neural network is trained with test data relating to a preselected group of companies (column 3, lines 61-66, "Market valuations are...a recent transaction")
- wherein, for each company, the test data comprises fundamental financial data and time series data (column 12, lines 15-34, "Advanced financial systems...herein by reference")

- wherein input values to the neural network during training are derived from the fundamental financial data (column 23, lines 57-66, "The software in...in FIG. 10")

- model output values are derived from the time series data (Fig. 8A-B, steps 550, 545; Figs. 9-10; column 28, lines 2-15, "After the revenue component...between independent variables")

- cyclic residuals are derived from the filtered time series data and a range of values that represent valuations of the company within a predetermined confidence level are derived from the cyclic residuals (column 15, lines 49-58, "The valuation of...current system date"; column 24, lines 52-63, "The input vectors...5 shown below"; column 34, lines 48-61, "After the calculations...the application database")

However, *Eder* doesn't explicitly teach median values while *Deck et al* teaches,

- the neural network has a plurality of output nodes comprising median value information and information regarding endpoints for a range of values that represent valuations of the company within a predetermined confidence level (page 77, Abstract, sentences 5, "We find that...manually set prices")

Motivation - The portions of the claimed system would have been highly desirable features in this art for

- Minimizing variance (*Deck et al,* page 82, footnote 8, sentence 4, "The Hodrick-Prescott filter...differences of s_t")
- Improving the value of an enterprise (*Eder*, column 5, lines 23-38, "The innovative system...were described previously")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Eder* with *Deck et al* to obtain the invention specified in claim 16, a system for determining a fair valuation of a company. The modification would have been obvious because one of ordinary skill in the art would have been motivated to minimize errors when calculating the value of an enterprise.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- *Eder*; U.S. Patent Number 6,393,406

- *Martin*; U.S. Patent Number 6,330,547

- *Deck et al;* "Interactions of Automated Pricing Algorithms: An Experimental Investigation"; Proceedings of the 2nd ACM conference on Electronic commerce; October 2000

- *Nunn et al;* Multi-parameter local optimization for the design of superior matched filter polyphase pulse compression codes; Radar Conference, 2000. The Record of the IEEE 2000 International; 7-12 May 2000; Pages:435 - 440

- *Maravall et al*; "Time Aggregation and the Hodrick-Prescott Filter"; Banco de España-Servicio de Estudios; Documento de Trabajo n.º 0108; March 2001

- *Barr et al*; U.S. Patent Number 5,761,442; Predictive Neural Network Means And Method For Selecting a Portfolio of Securities Wherein Each Network Has Been Trained Using Data Relating to a Corresponding Security

- *Lawrence et al*; U.S. Patent Number 5,761,386; Method And Apparatus For Foreign Exchange Rate Time Series Prediction And Classification

- *Nevo et al*; U.S. Patent Number 5,946,666; Monitoring Device For Financial Securities

- *Baker et al*; U.S. Patent Number 6,338,067; Product/Service Hierarchy Database for Market Competition And Investment Analysis

- *Breitzman et al*; U.S. Patent Number 6,175,824; Method and Apparatus for Choosing a Stock Portfolio, Based on Patent Indicators

- *Barney et al*; U.S. Patent Number 6,556,992; Method And System For Rating Patents And Other Intangible Assets

- *Sanders*; U.S. Patent Number 6,411,936; Enterprise Value Enhancement System and Method

- *Korisch*; U.S. Patent Number 6,415,268; Method of Recovering The Real Value of a Stock From The Stock Pricing Data

- *Gotoh et al*; U.S. Patent Number 5,809,202; Recording Medium, An Apparatus For Recording a Moving Image, An Apparatus And a System For Generating a Digest of a Moving Image, And a Method of the Same

- *Smyth*; U.S. Patent Number 6,092,058 – smoothing filters

- *Han et al;* Efficient mining of partial periodic patterns in time series database; Data Engineering, 1999. Proceedings., 15th International Conference on; 23-26 March 1999; Pages:106 - 115

- *Muneyasu et al*; A realization of edge-preserving smoothing filters using layered neural networks; Neural Networks, 1995. Proceedings., IEEE International Conference on; Volume: 4; 27 Nov.-1 Dec. 1995; Pages:1903 - 1906

- *Kohonen;* LVQPAK: A software package for the correct application of Learning Vector Quantization algorithms; Neural Networks, 1992. IJCNN., International Joint Conference on; Volume: 1; 7-11 June 1992; Pages:725 - 730

- *Hodrick et al;* Postwar U.S. Business Cycles: An Empirical Investigation; The Center for Mathematical Studies in Economics & Management Sciences; Discussion Paper #451; Revised May 1981

Any inquiry concerning this communication or earlier communications from the Office should be directed to Meltin Bell whose telephone number is 703-305-0362. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:30 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anil Khatri, can be reached on 703-305-0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

MB / M.H.

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